Guidance Document EMS-1001

Virginia
Disaster Medical Response
Operations Guide

Edition: 27 October 1997

Virginia Office Of Emergency Medical Services
1538 East Parham Road
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I. Introduction

The Commonwealth of Virginia's Emergency Operations Plan, an Executive Order of the Governor, assigns responsibility for management of state level health and medical operations in a declared state of emergency to the Virginia Department of Health. The Commissioner of Health has designated the Office of Emergency Medical Services as the lead office within the Virginia Department of Health for the direction and coordination of medical response to disasters. The Office of Emergency Medical Services publishes this Operations Guide to provide a quick reference to the capabilities of the Emergency Medical Services in Virginia to respond to disasters. In this context the Emergency Medical Services include the complete range from prehospital care, through in hospital care of disaster victims, and finally to management of fatalities.

II. Hazard Analysis

Virginia historically has been subjected to a variety of natural, man made, and national security hazards. The Emergency Medical Services must be prepared to respond effectively to those that pose the greatest risk.

A. Natural Hazards:

1. Hurricanes: Hurricanes are moderate probability events in Virginia. Even though direct landfall on the Virginia Coast, especially by great hurricanes, is a rare to very rare event, once a hurricane season Virginia can be expected to be threatened or to have significant flooding or wind effects from a hurricane moving across the state overland. A great hurricane that makes landfall on the Virginia Coast, can be expected to cause very significant damage; the level of casualties from such an event will depend on whether timely evacuation is ordered.

2. Flooding: Flooding is an annual event in Virginia, with significant public health impacts, property destruction, and with destruction or blocking of roadways that the emergency services depend on. Deaths or severe injuries in flooding are normally few in number, although the highest number of deaths in a natural event in Virginia occurred as a result of flash flooding.

3. Severe Winter Storms: Severe winter storms are annual events in parts

of Virginia, resulting in delays of emergency services to people in affected areas. These storms generally have a potential for increased transportation accident injuries and for veterinary response concerns. Of increasing significance is the impact of power outages and blocked access to persons dependent on electricity, oxygen or other supplies as part of home health care.

4. Tornadoes: Virginia has an active tornado season each year with an average of 5 to 6 events. Although occasional tornadoes do produce significant damage, injuries, and loss of life in urban areas, tornadic activity is a relatively low risk event.

5. Earthquakes: Virginia has a history of earthquake activity, although earthquakes strong enough to cause significant damage or injuries are historically very rare events.

B. Man Made Hazards:

1. Industrial Accidents: Virginia has a large number of industrial and energy related sites with the potential for hazardous materials spills or atmospheric release, fires, or explosions. Virginia has two operational nuclear power stations, Surry and North Anna, and lies within the 50 mile ingestion pathway ring of a third, Calvert Cliffs in Maryland. Industrial accidents must be rated as a moderate probability.

2. Transportation Accidents: Virginia has all types of transportation for both passengers and cargo, including maritime, aviation, roadway, railroad, and pipeline. Transportation accidents are common occurrences and often involve injuries, death, and the release of quantities of hazardous materials.

C. National Security Threats

1. Attack: The probability of an attack on the Commonwealth by the regularly constituted military forces of a foreign power is very low and can be expected to remain low for the next ten years.

2. Terrorism: Recent events in the United States, the Middle East, and Asia have increased the level of concern about domestic and foreign terrorism. Currently, four potential incident types appear to be possible, one conventional and three involving weapons of mass destruction.

a. Conventional Attacks: Conventional attacks include the use of explosives, in quantities ranging from the truck bomb to pipe bombs, and attacks by gunfire. There is a historical record of both types of events in Virginia, and their probability of use must be rated as moderate to low. The pipe bomb may represent the most credible terrorist threat.

b. Use of Chemical Weapons: Chemical weapons mimic military war gases in their characteristics, although their effectiveness may range from as good as a military agent to relatively low levels of efficiency. Chemical weapons have been used by terrorist organizations, although the probability is probably very low.

c. Use of Biological Weapons: Biological weapons are difficult to detect because their effects appear as disease over a period of time. Depending upon the agent involved there is the potential for widespread human and animal deaths. Biological weapon use is probably of lower probability than chemical weapon use.

d. Use of Nuclear Weapons: While a nuclear weapon would be a very effective terrorist device, the probability of employment must be rated as being extremely low.

III. Coordination and Communications System

A. Operational Concept:

1. Role Of State Government: Disasters happen to localities. Local resources are the first to respond to any emergency, and local government is the level of government ultimately responsible for meeting the needs of the citizens within its jurisdiction. State agencies and state level resources are used to support local response, to augment its capabilities, to provide specialized technical knowledge, and to replace, to whatever degree practical, capabilities which have been lost or destroyed. State efforts to meet emergency medical needs will always be keyed to local needs and local requests for assistance.

2. Emergency Support Function 8: At the federal level, emergency support functions have been established to group together those agencies that share responsibilities for a specific function. At the federal level the Health and Medical function is Emergency Support Function 8 (ESF-8). In Virginia, the Office of Emergency Medical Services uses the ESF-8 structure as the basis for coordination of Virginia health and medical response to emergencies, mirroring the federal ESF-8. Virginia ESF-8 operations during disasters are coordinated by a representative from the Office of Emergency Medical Services in the State Emergency Operations Center and by the ESF-8 Emergency Support Center.

3. Lateral And Vertical Integration: Operations within ESF-8 will be vertically and horizontally integrated.

a. Horizontal integration is the coordination of efforts of primary and secondary health and medical agencies and other departments of state government. The Emergency Support Center, managed by the Virginia Office of Emergency Medical Services, is the focal point for horizontal integration of primary medical agencies during the emergency

response phase. The State Emergency Operations Center serves as the coordination point for horizontal integration with other state agencies.

b. Vertical integration is the coordination of needs and capabilities with local jurisdictions and federal agencies. The State Emergency Operations Center is the focal point for coordination of local needs and federal agency capabilities (with the Emergency Response Team, including the ESF-8 representative from the US Public health Service and the Defense Coordinating Officer). The Emergency Support Center is the focal point for resource dispatching and task monitoring.

4. Automation: Emergency operations will be managed using the Emergency Information System and internal databases of the Office of Emergency Medical Services.

5. Communications: ESF-8 operations will be coordinated using all available communications circuits during disasters. Normal landline telephone and fax circuits remain the primary method of communications. Backup communications circuits are provided by the SECURE high frequency system, 155.205 MHZ VHF-FM, and the Radio Amateur Civil Emergency Service.

B. State Emergency Operations Center:

1. Role: The State Emergency Operations Center provides a single facility in which representatives of state agencies and key functional areas work together to manage the state level response to a disaster. It is a central point for warning, assessing the situation, tracking developments, receiving requests for assistance, alerting and mobilizing resources, coordinating support, and determining the effectiveness of actions.

2. ESF-8 Representative:

a. The Health and Medical staff member in the Emergency Operations Center serves as the functional manager for the health and medical function, as a technical expert in emergency medical services, as the representative of the Commissioner of Health, and as the liaison to the Emergency Support Center.

b. On initial activation of the Emergency Operations Center and during the response phase this individual is assigned to the Emergency Services Branch of the Operations Section. However, the health and medical function also supports the Human Needs Branch as necessary.

c. The ESF-8 representative in the EOC is primarily responsible for gathering and relaying situation information to the Emergency Support Center, screening potential taskings to the health and medical function, coordinating other state agency and federal

support for response actions, and providing mission results to the EOC staff.

3. Location: The State Emergency Operations Center is located on Midlothian Turnpike in Richmond, underneath the Virginia State Police training academy.

4. Telephone Number: (804) 674-2400.

C. Emergency Support Center:

1. Mission: The mission of the Emergency Support Center is:

a. Emergency notification to health and medical agencies.

b. Gathering and analysis of current situation information.

c. Managing emergency staffing.

d. Managing mission assignment, notification, tasking, deployment and staging, reporting, and logistical support for health and medical resources.

e. Maintaining emergency response databases.

2. Location: The Emergency Support Center is located in the Office of Emergency Medical Services, 1538 East Parham Road, Richmond.

3. Staffing and Management: The Emergency Support Center is staffed by staff of the Office of Emergency Medical Services, representatives of other agencies as appropriate, and volunteers from the Health and Medical Emergency Response Team (HMERT). The Director of Emergency Operations of the Office of Emergency Medical Services manages staffing, training, and operations of the Emergency Support Center.

4. **Organization:**

a. Organizational Structure: When fully operational, the Emergency Support Center is managed by an Operations Director, with four key staff members: Administration and Logistics Officer, Information and Planning Officer, Response Operations Officer, and Interagency Coordination Officer. This staff can be expanded if required or tailored to best represent specific requirements during the phases of a disaster.

b. Health And Medical Emergency Response Team (HMERT): The HMERT's personnel are trained in disaster management and in the operation of the Emergency Support Center through an 80 hour training program and a regular schedule of

disaster exercises. HMERT members are Regular Service Volunteers of the Commonwealth under 2.1-555 Code Of Virginia.

5. Activation: The Emergency Support Center is activated when the State Emergency Operations Center goes to increased staffing, unless the situation requires an earlier activation.

6. Telephone Number: (804) 371-3500 (daytime during the work week); (804) 371-3518 (when activated).

IV. Emergency Medical Services

A. Standard Approach To Managing Incidents: Field management of emergency medical response to incidents is by use of a Medical Group. The Medical Group is a standard organizational structure of a Medical Group Supervisor and Extrication, Triage, Treatment, and Transportation Unit Leaders. This structure is consistent with all commonly used methods of incident management, including the Incident Command system, Incident Management System, and Fireground Command System.

B. Standard Approach To Classifying Patients: Patient classification in disasters and mass casualty incidents is based on a two level process. This process allows the best survival rate in major incidents where resources are scarce and ensures an orderly approach to treating large numbers of injured.

1. START: Initial patient classification by the first rescuers to reach them is by use of a modified Simple Triage and Rapid Treatment (START) algorithm. This approach allows rescuers to rapidly categorize patients for movement to treatment and further assessment.

2. Secondary Triage: Secondary triage during treatment and transportation to the hospital and hospital triage is based on clinical judgement of experienced prehospital providers and hospital medical staff.

3. Color Codes: Four standard color codes are used to denote patient condition:

RED severely injured patient who requires immediate care and who has a reasonable chance of survival

YELLOW a patient who has significant injuries, but whose treatment can be delayed without worsening of his or her condition

GREEN a patient with minimal injuries

BLACK a deceased patient

C. Response To Terrorist Incidents:

1. Situation: Terrorist incidents require modification of response procedures to provide the greatest possible security for the response elements. Terrorists are now actively targeting rescue forces. Under these conditions time on scene should be held to an absolute minimum and normal response procedures should be modified to reduce the vulnerability of rescuers.

2. Recommendations: The Virginia Office of Emergency Medical Services recommends that responding agencies:

a. Commit only the absolute minimum number of personnel needed to perform initial assessment and life saving to the immediate incident area.

b. Establish command functions at a distance from the site.

c. Use rescue and treatment procedures that allow the minimum on scene time possible. Rapid extrication and treatment once the patient is well clear should be considered.

d. Disperse staged resources and use visual communications to control staging.

e. Minimize the use of radio and cellular telephone communications to provide some measure of operations security and to reduce the chance of detonating a secondary device.

D. Resources

1. Local Resources: The Virginia Office of Emergency Medical Services currently certifies or licenses (as appropriate) the following resources (all figures are approximate because of daily fluctuations):

a. Agencies: A total of 720 agencies provide some level of emergency medical services:

269	volunteer rescue squads
133	volunteer fire departments

64	volunteer fire and rescue departments
145	commercial agencies
63	government and municipal agencies
13	hospitals
13	industrial facilities
9	non-profit agencies
11	air ambulance agencies

b. Vehicles: A total of 2892 vehicles, divided into the following categories:

647	first response vehicles (non-transport)
1939	ambulances
282	wheel chair vans
24	air medical aircraft

c. Providers: A total of approximately 36,100 field emergency medical services providers can perform Basic Life Support and Advanced Life Support skills.

(1) At the Basic Life Support level:

4600	First Responders
25100	Emergency Medical Technicians - Basic

(2) At the Advanced Life Support level:

1600	Shock Trauma (EMT)
2700	Cardiac Technicians (EMT)
2100	Paramedics

2. Mutual Aid: Individual agencies may have limited resources for response (a typical agency will have 2 to 4 ambulances and a rescue truck). Local capabilities are supplemented by mutual aid agreements and regional disaster operations plans.

a. Mutual aid is an organization-to-organization or jurisdiction- to-jurisdiction agreement that commits one agency's vehicles and personnel to support another agency in the case of major emergencies. Mutual aid agreements may be written or in place by long understanding and practice.

b. Regional disaster operations plans are in place in the Old Dominion EMS Alliance (Richmond metropolitan area and south central Virginia), Peninsulas EMS Region (the Peninsula, Middle Peninsula, and Northern Neck) and in the Council of

Governments area in northern Virginia. These plans establish arrangements for the dispatch and management of resources across a region in a mass casualty event.

E. Emergency Medical Services Task Forces

1. Mission: EMS Task Forces are deployed wherever needed in Virginia in declared states of emergency to:

a. Accompany rescue forces attempting to enter a disaster impact area to rescue and treat patients encountered and to provide medical support to the rescue forces.

b. Augment local jurisdictions as integral units to relieve personnel and equipment as needed and to provide outreach services.

c. Support specialized rescue or treatment resources which do not have patient rescue or treatment and transport capabilities.

2. Composition: EMS Task Forces consist of personnel, vehicles, and equipment, consisting of:

1	Rescue Truck - capable of reaching and extricating patients at the light duty rescue level
1	Basic Life Support Ambulance - capable of treating and transporting 2 YELLOW or 4 GREEN patients.
1	Advanced Life Support Ambulance - capable of treating and transporting 2 RED patients.
1	Disaster Truck or Trailer (if available) - capable of supporting up to 40 patients with one significant trauma at the Basic Life Support level.
1	Quick Response Vehicle - capable of reconnaissance, damage assessment, and initial support of 1 RED or 2 YELLOW patients.
10-12	Certified Emergency Medical Services providers, 1 of whom is designated as Task Force Commander.

3. Active Task Forces: Seven Task Forces are in the process of organization and activation, with leadership trained and resources identified. Procedures are in place to

activate Task Forces, and the procedures have been tested in exercises and actual events. The following Task Forces will be operational in 1997:

Lord Fairfax 1	LF-1
Central Shenandoah 2	CS-2
Southside 3	SS-3
Southside 4	SS-4
South Central 5	SN-5
Crater 6	CR-6
Metro 7	MR-7

4. Alerting And Deployment: EMS Task Forces progress through a series of stages of alert (12 hour, 6 hour, 3 hour, 1 hour, and staged at home) based on the situation. Task Forces may be forward deployed to Staging Areas to allow them to more rapidly reach an impact area after disaster effects have passed. Task Forces are requested through the State Emergency Operations Center and their employment coordinated by the Emergency Support Center.

5. Logistic Support: Task Forces can be prepared for 72 hours of operation without support except diesel or gasoline fuel for vehicles. However, provision of medical resupply, fuel, water, billeting, and messing through the supported agency is preferable.

F. C Teams: The Office of Emergency Medical Services has the capability to deploy trained health and medical coordination teams to coordinate EMS resource employment, supplement local emergency operations centers, or support other state use of Virginia resources under the Emergency Management Assistance Compact. C Teams consist of a minimum of four personnel to sustain two persons on duty 24 hours a day for at least 72 hours.

V. Hospitals

A. Concept Of Operations:

1. Regional Plan: If a regional plan for patient management in a disaster has been established, this plan will be followed.

2. Absence Of Plan: In the absence of regional plans for patient distribution, initial routing of patients from a disaster event causing mass casualties will be to the nearest facility. This allows the most rapid turn around of ambulances for return to the incident scene. When all patients are accounted for and have received initial care in acute care hospitals, redistribution of patients will occur as needed to ensure trauma center level care for those most in need of it.

3. Multiple Region Events: In the event of a mass casualty event that requires transfer of patients from one region to one or more additional regions, Regional Command Hospitals will coordinate with each other to ensure efficient distribution of the patients. Where more than two regions are involved, or when requested, the Emergency Support Center will assist with patient allocation and with transportation coordination as required.

4. National Disaster Medical System Activation: In case of activation of Virginia Hospitals to accept patients from other states, Federal Coordinating Centers will coordinate with the Regional Command Hospitals and with the Emergency Support Center to ensure rapid transfer of patients from airheads to receiving hospitals.

5. Evacuation Of Hospitals: Evacuation of a hospital is a difficult undertaking. If expected disaster effects will require evacuation of a facility, early evacuation decisions are critical to allow marshaling of resources to support the evacuation effort. Where possible, out of region emergency medical services and local commercial emergency medical services providers should be used for evacuation.

B. Command Hospitals:

1. Mission: Regional Command Hospitals serve as central points for coordination of patient distribution within their respective regions and coordinate laterally with other command hospitals (and, as required, with the Emergency Support Center) for distribution of patients outside their regions in a disaster.

2. Facilities: Five Level I Trauma Centers have been designated as Regional Command Hospitals:

Carilion Roanoke Memorial Hospital
Inova Fairfax Hospital
Medical College of Virginia Hospitals
Sentara Norfolk General Hospital
University of Virginia Medical Center

C. Trauma Centers: An additional 6 hospitals are designated as Level II or III Trauma Centers. These facilities provide advanced capability to treat trauma victims in a disaster.

1. Level II:

Bristol Regional Medical Center
Riverside Regional Medical Center
Virginia Beach General Hospital

2. Level III:

Columbia Pulaski Community Hospital
Montgomery Regional Hospital
Radford Community Hospital

D. Acute Care Hospitals: 82 additional acute care hospitals and 2 pediatric acute care hospitals provide a backbone of facilities that can support care for disaster victims.

E. Total Hospital Capacity: Virginia has approximately 19,000 staffed hospital beds, with 1400 emergency department beds. Approximate patient capacity for the first hour of a disaster statewide is 350 RED patients, 760 YELLOW patients, and 1400 GREEN patients.

F. National Disaster Medical System (NDMS): The National Disaster Medical System provides expanded capability to deal with catastrophic events. Activation of National Disaster Medical System components is by order of the President on request from the Governor. The primary operational advantage the NDMS provides is the ability to move large numbers of patients or specific patient categories out of state to other participating hospitals. Patient movement is coordinated through the Virginia Area Emergency Manager, the Federal Coordianting Centers, the Emergency Support Center, and the Global Patient Movement Regulating Command system (Scott Air Force Base, Illinois).

1. Hospitals: Virginia is served by three Federal Coordinating Centers (FCC): Portsmouth Naval Hospital (Portsmouth), Hunter Holmes McGuire Veterans Affairs Medical Center (Richmond), and the 89th Medical Group (Andrews Air Force Base Hospital, Maryland). Each FCC has identified and negotiated participation agreements with hospitals within ground transport range of the primary airheads.

2. Airlift: Virginia is served by three primary airheads for patient movement: Norfolk Naval Air Station, Richmond International Airport, and Andrews Air Force Base (Maryland).

3. Disaster Medical Assistance Teams: Deployed NDMS Disaster Medical Assistance Teams (DMATs) provides a clearing station and outreach capability in a catastrophic event. DMATs will be requested in events in which the hospitals in the disaster area are not operational and in which the DMAT can be deployed into the area in a timely manner. DMAT locations and operations will be coordinated with operations of the EMS Task Forces and with regional Command Hospital patient distribution.

VI. Fatality Management

A. Responsibility: The Office of the Chief Medical Examiner is responsible for response to mass fatality incidents. A mass fatality incident is one resulting in 25 or more deaths.

B. Regional Organization: The Office of the Chief Medical Examiner has four regional District offices, each with an operational morgue: Tidewater (Norfolk), Central (Richmond), Northern (Fairfax), and Western (Roanoke).

C. Support For Major Mass Fatality Incidents:

1. Division of Forensic Science: The Division of Forensic Science of the Department of General Services operates the state forensic laboratory.

2. 54th Quartermaster Company (Mortuary Affairs): The 54th Quartermaster Company, stationed at Fort Lee, provides a field deployable remains recovery, identification, and temporary mortuary capability. This unit will respond anywhere in Virginia to a mass fatality incident under a mutual aid agreement with the Office of the Chief Medical Examiner. On transition to a Presidentially declared disaster this unit's operations will be coordinated through the Defense Coordinating Element.

3. Virginia Funeral Directors Association (VFDA): The Virginia Funeral Directors Association maintains a disaster trailer to provide a working area and support to the Medical Examiner's staff. Members of the VFDA's disaster team provide augmentation to the Office of the Chief Medical Examiner on request.

4. Disaster Mortuary Teams (DMORT): The National Disaster Medical System maintains Disaster Mortuary Teams which can provide a field temporary morgue when needed. These resources are requested through the National Disaster Medical System. Such requests are coordinated through the Emergency Support Center and forwarded to the ESF-8 representative on the Federal Emergency Management Agency Emergency Response Team.

VII. Veterinary Response

A. Responsibility: Veterinary response to disasters is the responsibility of the State Veterinarian in the Department of Agriculture and Consumer Affairs.

B. Additional Resources: The disaster committee of the Virginia Veterinary Medical Association maintains a limited capability to augment local resources in the event of a disaster. Veterinary Medical Assistance teams can be requested through the National Disaster Medical System. Such requests are coordinated through the Emergency Support Center and

forwarded to the ESF-8 representative on the Federal Emergency Management Agency Emergency Response Team.

VII. Support To Emergency Public Health Operations

Emergency Support Function 8 also includes a wide range of other public health activities, some of which are located in the Department of Health and others in other agencies of state government. The Emergency Support Center also provides a central point for coordination of these efforts in a disaster:

Evacuation of patients and medical facilities.
Medical support to shelters.
Augmentation and resupply of resources.
Potable water.
Waste water and sewage disposal.
Radiological hazard monitoring and control.
Chemical hazard monitoring and control.
Vector control.
Mental health services.
Worker health and safety.
Public health information dissemination.
Food, drug, and medical device safety.

VIII. Data Automation

The following is the standard suite of software used by the Emergency Support Center to manage health and medical disaster response:

Emergency Information System - GEM (currently transitioning from Infobook): used for general response management, resource dispatch, and communictaion with the Virginia Operational Information System.

Transaid: used for patient and facility tracking.

Microsoft Access: used for databases on emergency contacts for ESF-8, Emergency Medical Services Task Forces, and hospitals.

HURREVAC: used for determining hurricane impacts on operations for the Hurricane impact jursidictions.

VaDMROG

HURRTRAK: used for current hurricane observations, forecasts, and threat determination.

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